

SHAPIRO, M. I., PETROVA, O. N., and [REDACTED].

"The Sterilizing Effect of Ionizing Radiations on Mammals: Report I. The Effect of X-Irradiation on the Fertility of Male Mice." in the book, "Collection of Works on Radiobiology" edited by N.I.N. Publ. House of AS USSR, Moscow 1955.

Murphy

SHAPIRO, N. I.

✓ 4382. Action of oestrogenic substances on the radiation reaction of mice. N. I. Shapiro, N. I. Nuzdin, and A. M. Kuzin *Radiobiology*, Acad. Sci. U.S.S.R., 1955, 16—50; *Referat. Zh. Biol.*, 1956, Abstr. No. 51463. Groups of 77—89 white male mice received subcut. 0.2 mg. of sinestrol or diethylstilboestrol in olive oil 10 days before general Röntgen radiation. Within 30 days in the group which was given sinestrol the survival was 57% compared with 37% in the control group, and in the case of diethylstilboestrol the corresponding figures were 78 and 39%. The average time of survival of those that died was 10.2 days with sinestrol compared with 10.7 in the control, and in the case of diethylstilboestrol 10.3 compared with 11.2. In the injected mice, particularly in those which received diethylstilboestrol, symptoms of radiation illness were less marked, the loss of wt. was less, and the recovery processes began sooner and developed more rapidly than in the controls. The injection of diethylstilboestrol mitigated the haematological symptoms and hastened the return of these to normal. An investigation of the effectiveness of different doses of diethylstilboestrol (0.025 to 0.8 mg.) showed in all cases a survival rate approx. double that of the controls. In experiments with mice which received i.d. 0.5 mg. of diethylstilboestrol 1—15 days before radiation injection at the extreme times in this range did not guarantee the protective effect, but protection was seen to the same extent when the injection was between the 3rd and the 12th day before radiation. Consequently, the protective effect of diethylstilboestrol begins 1—3 days after injection and ends in 12—15 days, but is maintained at the same level for about 10 days. Subcut. injection of mice with capsules containing 0.4 mg. of diethylstilboestrol mixed with talc

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SHAPIRO, N.I., NUZDIN, N.I. AND...
10-30 days before radiation was successful in prolonging the period of protective active, although in some cases protection was present in a weaker form but the protection had fully disappeared within 30 days. With repeated injections of 0.2-20 mg. of diethylstilboestrol 10 days before radiation no reduction in the defensive reaction was observed in the second injection, which showed the absence of acquired tolerance of the organism to diethylstilboestrol, and the possibility of prolonging its defensive effect by repeated injections. The combination of subcut. injection of 0.5 mg. diethylstilboestrol with 3 mg. of pregnenol or with 1 mg. progesterone showed that the presence of these substances did not reduce the defensive activity. (Russian)

D. H. SMYTH

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SHAPIRO, N. I.

✓ Role of the physiological state of the body in using substances protecting it from the harmful action of penetrating radiations. N. I. Shapiro, A. M. Kuzin, and N. I. Nuzhdin. *Sbornik Rabot Radiobiol., Akad. Nauk S.S.S.R., Inst. Genet., Biotis.* 1955, 61-0. — The protective action of diethylstilbestrol was hardly noticeable in propagating white mice, females, (strain A), which show marked resistance to x-irradiation due to their hormones. Injection of white mice, males and virgin females, (strain A) with diethylstilbestrol showed an appreciable protective action which approached that manifested in the propagating mice. Expts. with C₃ black mice showed that greater amts. of the estrogen are required to produce the same effect as in white mice. This can be ascribed to their physiol. characteristics. Diethylstilbestrol gave no protection against acute lethal x-ray dosage. The mechanism of the protective action of diethylstilbestrol has not as yet been fully established.

Sonya G. Machelson —

SHAPIRO, N. I.

✓ 4372. Sterilizing activity of ionizing radiation in mammals. I. Effect of X-rays on fertility of male mice. N. I. Nuzdin, N. I. Shapiro, and O. N. Petrova. II. Effect of X-rays and of gamma radiation on the oestrous cycle in female mice. N. I. Nuzdin, N. I. Shapiro, O. N. Petrova, and O. N. Kitaeva. III. Nature of the sterility produced by the action of X-rays. N. I. Nuzdin, N. I. Shapiro, O. N. Petrova, and I. A. Nachaev. *Radiobiology, Acad. Sci., U.S.S.R.*, 1955, 83—112, 113—148, 150—159; *Referat. Zh. Biol.*, 1956, Abstr. Nos. 51,460, 51,461, 51,462.—I. A single dose of Röntgen rays 200—400 r causes sterilisation, accompanied by various signs of radiation illness and a lowering of body weight. Fertility depends on the dose, and on the time of crossing the animals with unirradiated females. The lowest fertility was seen on crossing one month after radiation, and was 16.7% compared with 84.8% in the controls. Fertility was almost normal in crossing either immediately or after 3 months of radiation. Investigation of the testes of the radiated animals showed a sharp disturbance of spermatogenesis, damage to the germ cells in the early stages of spermatogenesis, and to a temporary interruption of spermatogenesis on account of loss of capacity of the cells for division. Within a month after radiation recovery of spermatogenesis started and continued for 3 months. The spermatozoid stage is the most sensitive, but the spermatozooids already formed do not undergo damage. Post embryonic development of the males of the first generation is not different from normal animals.

II. With a single dose 15—25 r, the oestrous cycle in mice of strain A was not disturbed but with doses of 50, 100, 200, and 400 r changes took place in the time relations of the cycle; the frequency of pro-oestrous and oestrous was lowered, and there was a lengthening of di-oestrous and met-oestrous. The disturbance of the normal cycle begins with the second month after radiation. The absence of change in the oestrous cycle in mice radiated with small doses 15—25 r is not an indication of normal fertility; the number of

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10—30 days before radiation was successful in prolonging the period of protective active, although in some cases protection was present in a weaker form but the protection had fully disappeared within 30 days. With repeated injections of 0.2—20 mg. of diethylstilboesterol 10 days before radiation no reduction in the defensive reaction was observed in the second injection, which showed the absence of acquired tolerance of the organism to diethylstilboesterol, and the possibility of prolonging its defensive effect by repeated injections. The combination of subcut. injection of 0.5 mg. diethylstilboesterol with 3 mg. of pregnenol or with 1 mg. progesterone showed that the presence of these substances did not reduce the defensive activity. (Russian)

D. H. SMYTH

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SHAPIRO N.I.
Voprosy Radiobiologii (Problems of Radiobiology), under the editorship of M. N. Pobedinskiy and P. N. Kiselev, Medgiz, 1956, 427 pp (from Meditsinskiy Rabotnik, 23 Oct 56)

This collection is devoted to a study of the action of ionizing radiations on the live organism on the basis of studies of the laboratory of the Central Scientific Research Roentgeno-Radiological Institute. (U)

Ocherki po Radiobiologii (Essays on Radiobiology); Prof A. M. Kuzin, editor in chief; Moscow, Publishing House of the Academy of Sciences USSR, 1956, 312 pp

This collection of essays includes the following: "The Biochemical Basis of the Biological Action of Ionizing Radiation," by A. M. Kuzin, pp 5-96; "Experimental Study of the Action of Ionizing Radiation of Mammals," by N. I. Shapiro, pp 97-150; "The Nervous System and Ionizing Radiation," by N. N. Livshits, pp 151-232; and "Morphological Changes of the Nucleus and Chromosomes Under the Action of Various Types of Radiation," by L. P. Breslavets, pp 233-311. (U)

SHAPIRO, N.I.

70 feet

Influence of ionizing radiation on bone marrow cells of mice. E. Kirpichnikova, N. I. Shapiro, N. V. Belitsina, and L. V. Ol'shevskaya (M. V. Lenin State Univ., Moscow). Zhur. Obshch. Biol. 17, 340-54(1958).—The process of degeneration of cells of bone marrow in mice can be noted 8 hrs. following a single dose of 600 r. of general irradiation. A large no. of erythrocytes can be seen; the no. reaches a max. on the 4th day. At this time almost complete aplasia of bone marrow is observed. Between the 4th and 8th day regeneration begins, and an almost normal state prevails on the 12th day. Six hrs. following irradiation, the ribonucleic acid (RNA) content in cytoplasm of morphologically unaffected cells decreases. Later, following cell destruction, there is complete absence of RNA. Similar changes are observed with deoxyribonucleic acid (DNA), although some DNA remains even during complete cell destruction. The concentration of SH— groups in irradiated cells of bone marrow decreases only after alteration in their morphological structure. Cell destruction leads to a sharp decrease in SH— group content. Different cells, containing similar amounts of SH— groups, possess different radiosensitivity (hemocytoblasts and myelocytes). In irradiated cells there occurs redistribution of peroxidase content. Morphine, injected prior to irradiation, decreases radiosensitivity of mice, processes of degeneration of bone marrow tissue are slowed down, and processes of regeneration are somewhat accelerated. I. A. Stekol

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Chem. Histology

Inst Biol. Physics,
AS USSR

SHAPIRO, NIKOLAY IOSIFOVICH

GRAYEVSKIY, Emanuel Yakovlevich; SHAPIRO, Nikolay Iosifovich;
SHAPIRO, F.B., redaktor izdatel'stva; NICHIPOROVICH, A.A.,
otvetstvennyy redaktor; ASTAF'YEVA, G.A., tekhnicheskiy
redaktor

[Present-day problems in radiobiology.] Sovremennye voprosy
radiobiologii. Moskva, Izd-vo Akad.nauk SSSR, 1957. 93 p. (MLRA 10:5)

(Radiobiology)

SHAPIRO, N.I.

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STUDIES OF FACTORS CAUSING THE DISTURBANCE OF
THE ESTRUAL CYCLE IN MICE FOLLOWING WHOLE-
BODY EXPOSURE TO X RADIATION. N. I. Shapiro, N. I.
Nuzhdin, and O. N. Kitaeva (Inst. of Genetics, Acad. of
Sciences, U.S.S.R.). Izvest Akad. Nauk S.S.S.R. Ser.
Biolog. 337-63(1957) Sept.-Oct. (In Russian)

C/R

SHAPIRO, H.I.
ARSEN'YEVA, M.A.; BEL'GOVSKIY, M.L.; DELONE, N.L.; PETROVA, O.N.; KHVOSTOVA,
V.V.; SHAPIRO, H.I.

Radiation genetics. Itogi nauki.Biol.nauki no.1:329-378 '57.
(RADIATION--PHYSIOLOGICAL EFFECT) (GENETICS) (MIRA 11:3)

SHAPIRO, N.I.; NUZHIDIN, N.I.; KITAYEVA, O.N.

Studying the reasons of disorders in the estrual cycle of mice following total X irradiation. Izv. AN SSSR. Ser.biol. no.5: 537-555 S-O '57. (MIRA 10:10)

1. Institut biologicheskoy fiziki Akademii nauk SSSR i Institut genetiki Akademii nauk SSSR.
(ESTRUS) (X RAYS--PHYSIOLOGICAL EFFECT)

SHAPIRO, H.I., and ILSHAROKOVA, I.F.

"Some Data on the Action of Radiation on E. Coli,"
paper presented at Intl Congress of Radiation Research - Burlington, Vermont,
10-16 Aug 58.

Inst. of Biological Physics, Acad. Sci. USSR, Moscow

SHAPIRO, N. I. and NUZHIDIN, N. I.

"X-Radiation and Female Fertility in the Different Species of Mammals."
paper submitted for the INTL. Congress. on Radiation Research, 10-16 Aug 1958.
Burlington, Vermont.

GRAYEVSKIY, E.Ya.; KOROGODIN, V.I.; KUZIN, A.M., ; MOSKALEV,
Yu.I.; SMIRNOV, K.V.; STREL'TSOVA, V.N.; SHAPIRO, N.I.,
doktor biol. nauk; SHIKHOLYGOV, V.V.; EYDUS, L.Kh.;
ALEKSAKHIN, R.M., red.

[Principles of radiobiology] Osnovy radiatsionnoi bio-
logii. Moskva, Nauka, 1964. 402 p. (MIRA 18:1)

1. Akademiya nauk SSSR. Institut biologicheskoy fiziki.
2. Chlen-korrespondent AN SSSR (for Kuzin).

SHAPIRO. N.I.. NUZHEDIN. N.I.. PETROVA. O.N.

Effect of X irradiation on the viability and fertility of guinea
pigs [with summary in English]. Zhur.ob.bio. 19 no. 4:249-264
Jl-Ag '58 (MIRA 11:7)

1. Institut biofiziki i Institut genetiki AN SSSR.
(X RAYS--PHYSIOLOGICAL EFFECT)
(GUINEA PIGS)

Author:

Shchegolev, N. N. Corresponding Member, Academy of Sciences of the USSR, Shchegolev, N. N. Pechayev, N. N.

Title:

The role of water in the determination of the sensitivity of organisms to ionizing radiation and the mechanism of its action (radiochuvstvitel'nost' organizmov k ioniziruyushchey radiatsii i mekhanizm ee deystviya)

Periodical:

Trudy Akademii nauk, 1958, Vol. 126, No. 5, pp.1116-1124 (1958)

Abstract:

The investigation of the factors determining the sensitivity in question is of great importance for the determination of the rules governing the effects of ionizing radiation on biological objects as well as for the investigation of ways and means of biological protection against such radiation. In this field sufficient data are available indicating the varying sensitivity of different types of cells and organs to the mentioned effects (ref 1). In this connection the determination of the properties in question of organisms of the same type is of special interest since they determine the degree of their sensitivity. In analyzing the effect of pro-

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14.10.70-54.100

The role of Constitutional (Hereditary) Characters in the Radiosensitivity of Animals

by of the mortality of 50% of the irradiated animals. On this occasion also the quantitative characteristics of the differences between the lines are maintained to a certain degree. The average life-time of the animals dying due to irradiation represents another important characteristic feature of the effect of the action of radiation. It was proved that the straight line to be expected theoretically which was computed on the basis of points data according to the method of least squares will agree with the results from the average lifetime of irradiated animals obtained by experiments. The physiological mechanisms of the irradiation mortality of the lines differing as to their radiosensitivity are probably the same. There are 2 figures, 1 table, and 30 references; 7 of which are Soviet.

ASSOCIATION: Institut genetiki Akademii nauk SSSR
(Institute of Genetics, AS USSR)
Institut biofiziki Akademii nauk SSSR (Institute of Biophysics,
AS USSR)

Card 3/1

SOV/26-126-5-54/67

The Role of Constitutional (Hereditary) Characteristics in the Radiosensitivity of Animals

DATE: March 17, 1968

1. Animals--Genetic factors
2. Animals--Physiological factors
3. Animals--Effects of radiation
4. Radiation injuries--Counter-measures

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SOV/20-122-2-14/42

21(3)

AUTHORS: Shapiro, F. B., Shapiro, N. I.

TITLE: The Variation of the Numerical Ratio of the Sexes in Mice as a Possible Result of γ -Irradiation of the Embryos (Izmeneniye chislennogo sootnosheniya polov u myshey kak vozmozhnyy rezul'tat γ -oblucheniya embrionov)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 2, pp 215-218 (USSR)

ABSTRACT: The purpose of this paper was 1) the investigation of the fertility of the animals which were irradiated in the stage of gonad formation and 2) the investigation of the secondary sex symptoms in such animals. Both of these problems required an exact recording of the sex of the animals born. The results of these investigations, on their part, required the investigation of the problem of the possible variation of the numerical ratio of the sexes as a result of the γ -irradiation of the embryos. The carrying out of the experiments is discussed in a few lines. A table gives the results concerning the numerical ratio of the sexes for the descendants of

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SOV/20-122-2-14/42

The Variation of the Numerical Ratio of the Sexes in Mice as a Possible
Result of γ -Irradiation of the Embryos

non-irradiated females and of females which were irradiated by γ -rays in various stages of the pregnancy. According to these results, the irradiation of the embryos 9 - 10 days after conception causes a noticeable increase in the number of males. This tendency is intensified by an irradiation of the embryos in the interval of between 11 and 12 days. After an irradiation of the embryos 13 - 14 days after conception, the numerical ratio of the sexes is practically normal. The critical period, therefore, seems to be limited to the interval of 9 - 12 days after the irradiation. There are 2 possible explanations of the variation of the sex ratio: 1) More females than males die under the influence of irradiation. 2) The direction of the development of the embryos is changed from the female to the male sex. The arguments in favor of both of these hypotheses are discussed. Further investigations are necessary for a definitive solution of this problem. There are 1 figure, 1 table, and 12 references, 4 of which are Soviet.

Card 2/3

SOV/20-122-2-14/42
The Variation of the Numerical Ratio of the Sexes in Mice as a Possible
Result of γ -Irradiation of the Embryos

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)
Institut biofiziki Akademii nauk SSSR
(Institute of Biophysics, AS USSR)

PRESENTED: May 16, 1958, by I. I. Shmal'gauzen, Academician

SUBMITTED: May 14, 1958

Card 3/3

21(3)

AUTHORS:

Shchegolev, N. I., Bockarova, Ye. M.,
Kashitskova, R. M.

SOV/26-122-5-15/56

TITLE:

Estrogens and the Natural Radiation Sensitivity of Mice
(Estrogeny i yestestvennaya radiochuvstvitel'nost'
myshy)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 5,
pp 802 - 805 (USSR)

ABSTRACT:

The solution of this problem would be of interest for the simple reason that, hitherto, the necessary data concerning the endogenic factors have been lacking in radiobiology; these factors contribute towards determining the sensitivity to radiation of one or the other species of mammalian. According to published works, the estrogens influence the natural radiation-sensitivity of animals. In the first part of this paper the radiation-sensitivity of castrated and normal female mice was investigated. The I.series of tests concerns female mice which have already born young, and series II deals with test-

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Estrogens and the Natural Radiation Sensitivity of Mice SOV/20-122-5-15/56

animals which have not had any young. The mice were castrated 5-6 days after bringing forth young. The control animals were subjected to the same operation as was performed on the test animals, but their ovaries were not removed. All categories of female mice were irradiated 4 weeks after the operation had been performed. In the second part of this paper the dependence of the radiation-sensitivity of female mice in the stage of the "estral" (estral'nyy) cycle (in which they were also during irradiation) was investigated. The radiation-sensitivity of castrated mice is equal to that of not castrated mice. A table shows the results obtained by tests carried out for the purpose of determining the fatal radiation dose in the case of mice which had been in various stages of the "estral" cycle during irradiation. According to these data there is no difference in the radiation sensitivity of the four groups of mice which had been compared. The opinions expressed by various other authors are discussed and some of them are declared to be wrong. There are 2 tables and 6 references, 2 of which are Soviet.

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Estrogens and the Natural Radiation Sensitivity of Mice SOV/20-122-5-15/56

ASSOCIATION: Institut biologicheskoy fiziki Akademii nauk SSSR
(Institute of Biological Physics of the Academy of
Sciences USSR)

PRESENTED: May 29, 1958, by L.S.Shtern, Academician

SUBMITTED: May 29, 1958

Card 3/3

SHAPIRO, N.I.

Genetic effect of small doses of ionizing radiations. Med.rad. 4
no.2:67-77 F '59. (MIRA 12:4)

1. Iz Instituta biologicheskoy fiziki AN SSSR.
(RADIATIONS, effects,
genetic reactions to small doses, review (Rus))
(GENETICS,
genetic reactions to small doses of ionizing
radiations, review (Rus))

SHAPIRO, N.I.; NENAROKOVA, I.F.; SUSLIKOV, V.I.

Radiobiological analysis of the relationship between the inactivation of Escherichia coli and the dose of X irradiation. Biofizika 4 no.5:559-566 '59. (MIRA 14:6)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(ESCHERICHIA COLI) (X RAYS--PHYSIOLOGICAL EFFECT)

NUZHDIH, H.I.; SHAPIRO, N.I.; POMERANTSEVA, M.D.; KUZNETSOVA, N.N.

Comparative study of the effectiveness of a single and fractional
X irradiation of testicles in mice. Zhur.ob.biol. 20 no.3:216-
229 My-Je '59. (MIRA 12:8)

1. Institute of Genetics and Institute of Biophysics, Academy
of Sciences of the U.S.S.R.
(X RAYS--PHYSIOLOGICAL EFFECT) (TESTICLE)

17(4,10)

AUTHORS:

SOV/20-126-1-52/62

Shapiro, N. I., Bocharova, Ye. M., Belitsina, N. V.

TITLE:

On the "Oxygen-effect" Observed in the Case of Radiation Injuries in Vegetable and Animal Cells (O "kislородnom effekte", nablyudayemom pri lucheovom povrezhdenii rastitel'nykh i zhivotnykh kletok)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 191-194 (USSR)

ABSTRACT:

One of the most universal radiobiological laws is the intensification of the ionizing effect in media containing oxygen. The "oxygen-effect" is observed in a relatively small specific ionization. According to numerous statements, it is related to the mechanism of the radiolysis of water (Ref 1). According to the latest investigations, the effect mentioned is much more complicated, since oxygen increases the damage, which has nothing to do with the radiolysis of water (Refs 2-11). Despite the data already known more facts are necessary to explain the "effect". The present article is meant to prove the "effect" in 2 completely different types of cells, where it is in no relation to the radiolysis of water. The objects used were barley seeds of the type "Wiener", and cells of the

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SOV/20-126-1-52/62

On the "Oxygen-effect" Observed in the Case of Radiation Injuries in Vegetable and Animal Cells

ascitic carcinoma of Ehrlich in mice. The chromosome aberration served as an index of the damage. The total dose of radiation amounted to 10000 r for barley, with an intensity of 515 r/min. Variations of the experiment were: I. 10 kr, II. 10 kr, and besides for 30 min O_2 was blown through the water in which afterwards the seeds were soaked. III. - as II, but $4 \cdot 10^{-3}$ m sodium metabisulphite solved in water beforehand. IV. - as III, but without O_2 . There were also 3 control variants. A summary of the results is given in table 1. Therefrom it may be seen that the frequency of the developing chromosome disturbance increases rapidly in the case of O_2 treatment immediately before the seeds are exposed to ray treatment. The result achieved by the introduction of sodium metabisulphite shows that the generally comprehensible radiation-effect also includes that part of the damage of the object which, although due to the O_2 -influence, has nothing to do with the radiolysis

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SOV/20-126-1-52/62

On the "Oxygen-effect" Observed in the Case of Radiation Injuries in Vegetable and Animal Cells

of water. This participation can be estimated to be about one third. The cells of the ascitic carcinoma were studied in vitro in the following variants: I. radiation in the air, II. the same under the conditions of a vacuum, III. - as in II, followed by 2 hours in the vacuum. The results achieved (Table 2) prove the bibliographical data on the existence of an "oxygen-effect" (Ref 14). Analogous to barley in this case it was not connected with the radiolysis of water. This evidence of the mentioned effect in 2 objects systematically so different from each other, proves its frequency in radiobiological reactions. Its physico-chemical mechanism deserves further investigations. There are 2 tables and 14 references, 1 of which is Soviet.

ASSOCIATION: Institut biologicheskoy fiziki Akademii nauk SSSR (Institute of Biological Physics of the Academy of Sciences, USSR)

PRESENTED: February 2, 1959, by A. L. Kursanov, Academician

SUBMITTED: February 2, 1959
Card 3/3

SHAPIRO, N.I.; BELITSINA, N.V.

Chemical structure of streptomycin and changes in the frequency of nuclear lesions caused by the irradiation of mammalian cells.
Biofizika 5 no. 6:752-754 '60. (MIRA 13:10)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(STREPTOMYCIN) (RADIATION PROTECTION)

SHAPIRO, N.I.; TOLKACHEVA, Ya.N.; SPASSKAYA, I.G.; FEDOSEYEV, V.M.

Experimental study on the possibility of utilizing protective
substances in radiotherapy of malignant tumors. Vop.onk. 6
no.1:71-79 '60. (MIRA 13:10)
(CANCER) (THIOUREA) (X RAYS—THERAPEUTIC USE)

SHAPIRO, N.I.; STRASHNENKO, S.I.; PLOTNIKOVA, Ye.D.; SUSLIKOV, V.I.

Comparative estimation of the damaging effect of ionizing radiation on heredity in mice and drosophilae. Zhur.ob.biol.
21 no.2:104-112 Mr-Apr '60. (MIRA 13:6)

1. U.S.S.R. Academy of Medical Sciences and Institute of Biological Physics, U.S.S.R. Academy of Sciences.
(X RAYS--PHYSIOLOGICAL EFFECT) (HEREDITY)

NUZHIDIN, N.I.; SHAPIRO, N.I.; CHUDINOVSKAYA, G.A.; PANKOVA, N.V.

Effect of protective substances on mammalian gonads. Zhur. ob.
biol. 21 no.6:430-438 N-D '60. (MIRA 14:1)

1. Institut genetiki i Institut biofiziki AN SSSR.
(RADIATION PROTECTION) (GENERATIVE ORGANS)

SHAPIRO, N.I.; BOCHAROVA, Ye.M.

Two types of radiation after effects observable in barley
seeds. Dokl.AN SSSR 133 no.2:462-465 J1 '60.
(MIRA 13:7)

1. Institut biologicheskoy fiziki Akademii nauk SSSR.
Predstavleno akademikom V.A.Engel'gardtom.
(PLANTS, EFFECT OF GAMMA RAYS ON)
(CHROMOSOMES)

86389

S/020/60/135/002/034/036
B016/B052

17.1400

AUTHORS: Belitsina, N. V. and Shapiro, N. I.

TITLE: New Data on the Influence of Streptomycin on the Radiation
Damage of Cells of Mammals

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 2,
pp. 463-466

TEXT: The authors report on their studies of the protective effect of streptomycin against radiation damage in the cells of mice. The work was carried out to solve the following problems: 1. radiation damage of cells and the protective effect of streptomycin as reflected by the number of chromosome aberrations. 2. Has streptomycin only a prophylactic effect? 3. Is streptomycin effective in all cells exposed to radiation regardless of their stage at the time of application? Like in previous experiments of the authors (Ref. 1), the Ehrlich cells of ascitic carcinoma in mice were studied. Experiments for answering problems 1 - 3:
1. The growth inhibition of the tumor was used as radiation damage index.

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New Data on the Influence of Streptomycin
on the Radiation Damage of Cells of Mammals

S/020/60/135/002/034/036
B016/B052

The carcinoma cells were exposed to γ -rays of Co^{60} (dose of 1500 r) in vitro. The ascitic liquid with an addition of 1 mg/ml of streptomycin was incubated at 37°C for 1 h before irradiation. Unaffected mice were vaccinated with $(20-30) \cdot 10^6$ cells per animal. After 7 days the volume of the developing tumor was measured. From the results the authors conclude that there is a protective effect of streptomycin in the case of tumor growth inhibition (and also in the case of chromosome aberration, Ref. 1). 2. Ascitic cells were treated with a gamma dose of 800 r in vitro. In a series of experiments, streptomycin (1mg/ml) was added before, and in another one after irradiation. After that, the mixture was incubated for 1 h at 37°C . The cell suspension was then injected into unaffected mice. After 24 h, ascitic liquid samples of these mice were fixed and dyed. Normal anaphases, early telophases, and those with chromosome aberrations were counted. Problem 2: Streptomycin is also effective against radiation damage when applied immediately after irradiation. 3. The authors introduced streptomycin 1 h before irradiation, and studied the frequency of chromosome aberration 8, 12, 16, 20, 24, 28, 32, 48, and 72 h after irradiation. The authors conclude that streptomycin is ineffective

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New Data on the Influence of Streptomycin
on the Radiation Damage of Cells of Mammals

S/020/60/135/002/034/036
B016/B052

against radiation damage when introduced 7 h before the anaphase sets in. In conclusion, the authors state that streptomycin partly eliminates radiation damage of cells, but only when applied after irradiation, since the successful elimination of cell disturbances is only possible within a brief period of time. This period is limited by the time of irradiation and the first stage of cell division. The authors point out that streptomycin is highly effective despite the shortness of this period. There are 1 figure, 2 tables, and 4 references: 1 Soviet and 2 US.

ASSOCIATION: Institut biofiziki Akademii nauk SSSR (Institute of
Biophysics of the Academy of Sciences USSR)

PRESENTED: May 21, 1960, by I. I. Shmal'gauzen, Academician

SUBMITTED: May 17, 1960

Card 3/3

SHAPIRO, N.I.; PLOTNIKOVA, Ye.D.; STASHNENKO, S.I.; SUSLIKOV, V.I.

Relative genetic radiosensitivity in different mammal species.
Radiobiologiya 1 no.1:93-103 '61. (MIRA 14:7)

1. Akademiya meditsinskikh nauk SSSR i Institut biologicheskoy fiziki
AN SSSR, Moskva.
(X RAYS—PHYSIOLOGICAL EFFECT)

SHAPIRO, N.I.

Some problems of modern radiobiology related to radiotherapy of malignant tumors. Radiobiologiya 1 no.6:817-823 '61. (MLA 15:2)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(CANCER) (RADIOTHERAPY)

TOLKACHEVA, Ye.N.; SHAPIRO, N.I.

Causes of noneffectiveness of aminoehtylisothioronium following
irradiation of the cells of various tumors. Vop.onk. 7 no.3:68-
72 '61. (MIRA 14:5)
(TUMORS) (THIOUREA) (RADIATION PROTECTION)

SHAPIRO, N. I.; KONSHINA, I. Z.

Production of highly purified diphtheria antitoxin and its characteristics. Report No. 2: Electrophoretic and antigenic analysis of highly purified diphtheria antitoxin and intermediate fractions. Zhur. mikrobiol., epid. i immun. 32 no.8:24-27
Ag '61. (MIRA 15:7)

1. Iz Leningradskogo instituta vaktsin i syvorotok.

(DIPHTHERIA) (TOXINS AND ANTITOXINS)
(PAPER ELECTROPHORESIS)

42681
S/747/62/000/000/002/025
D268/D307

27 12-20
AUTHORS: Nuzhdin, W. I., Shapiro N. I. and Nechayev, I. A.
TITLE: Comparative characteristics of radiosensitivity in different lines of mice in relation to genetics. The role of hereditary characteristics in animal radiosensitivity
SOURCE: Radiatsionnaya genetika; sbornik rabot. Otd. biol. nauk AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 24-38
TEXT: Radiosensitivity was studied in ca. 2 1/2 month-old male and female mice in 4 lines and 1 subline, irradiated with single x ray doses at 350, 425, 500, 575 and 650 r. Interlinear differences in radiosensitivity were observed. For males LD_{50/30} fluctuated in the range 538 - 413 r and for females in the range of 559-465 r. A close similarity in irradiation reaction in intralinear males and females was indicated by the high positive correlation coefficient for LD₅₀ values for males and females of a single line determined in inter-linear mortality comparisons. The data showed that females were
X
Card 1/2

42684

S/747/62/000/000/005/025
D268/D307

271230

AUTHORS: Shapiro, N. I., Plotnikova, Ye. D., Strashnenko, S. I.
and Suslikov, V. I.

TITLE: Comparative genetic radiosensitivity in different species
of mammals

SOURCE: Radiatsionnaya genetika; sbornik rabot. Otd. biol. nauk
AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 63-78

TEXT: To provide data on the rate of induced mutations, with dominant lethals taken as the indicators of genetic changes, the gonads in 2 1/2 - 4 month-old male mice were irradiated with x rays at 134, 268, 402 and 670 r, those in rats at the same dose and 804 r, and those in 5 - 8 month-old chinchilla rabbits at 150, 300, 450, 600 and 750 r. The mice and rats were subsequently mated with females of their own age, being kept together for 3 days, and the females were slaughtered on the 14 - 16th day of pregnancy. After mating, the female rabbits were slaughtered on the 20th day of pregnancy. In all 3 species the numbers of yellow bodies, implantation sites

Card 1/2

42685

S/747/62/000/000/006/025
D268/D307

AUTHORS: Shapiro, N. I., Strashnenko, S. I., Plotnikova, Ye. D.
and Suslikov, V. I.

TITLE: A comparative assessment of the injurious effect of ionizing radiation on heredity in mouse and Drosophila

SOURCE: Radiatsionnaya genetika; sbornik rabot. Otd. biol. nauk
AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 79-90

TEXT: The rate of the formation of dominant lethals was used as an indicator of the effect of radiation. Gonads in 2 1/2 - 4 month-old male mice were irradiated with x rays at 134, 268, 402 and 670 r, followed by mating with 2 females for 3 days. On the 14-16th day of pregnancy these were opened and the number of yellow bodies, implantation sites and embryos assessed. Embryos killed both before and after implantation were determined, due to dominant lethals in the spermatozooids of the irradiated males. Similar data for maximum and minimum radiosensitivity in different lines of Drosophila melanogaster were used from previous studies by N. I. Shapiro et

Card 1/2

A comparative assessment ...

S/747/62/000/000/006/025
D268/D507

41. (Dokl. AN SSSR, 1977, no. 8, 1785-1788). Comparison of the rates of the formation of dominant lethals in mice and D. melanogaster by 3 methods which are described showed that: 1) mice were on average of 5 - 7 times; 2) an average of 6 - 8 times; and 3) an average of 8 - 9 times more radioactive. It is therefore concluded that mice are 5 - 9 more radiosensitive than D. melanogaster. The rate of the formation of dominant lethals in both subjects was proportional to the total chromosome measurements, that in mice being 9 times higher. There are 2 figures and 5 tables. X

ASSOCIATION: Akademiya meditsinskikh nauk SSSR (Academy of Medical Sciences USSR) and Institut biologicheskoy fiziki AN SSSR, Moskva (Institute of Biological Physics AS USSR, Moscow)

Card 2/2

42689

3/747/62/000/000/010/025
D268/D307

2/1250

AUTHORS: Nushain, N. I., Shapiro, N. I., Pomerantseva, M. D. and
Kuznetsova, N. N.

TITLE: A comparative study of the effectiveness of single and
fractionated x ray irradiation of testes in mice

SOURCE: Radiatsionnaya genetika; sbornik rabot. Otd. biol. nauk
AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 115-132

NOTE: To determine the comparative effectiveness of single and
fractionated doses of x rays on testes and its relationship to dose
size and the degree of fractionation, 3 month-old male mice were
wholebody irradiated at 100 r (single dose; 4 x 26 r at 1-day in-
tervals) and 400 r (single dose 2 x 200 r at 4-day intervals; 4 x
100 r at 2-day intervals; 65.5 r for 6 days and 40 r for 10 days).
Testes were also locally irradiated at 1,600 r (single dose; 4 x
400 r at 2-day and at 4-5-day intervals). Spleen, thyroid gland,
and leucocytes were also studied to determine the specific reaction
of gonads to fractionation. In the 3 series, 491, 111, and 49 ani-

Card 1/2

A comparative study ...

S/747/62/000/000/010/025
D263/0307

Mice were studied respectively and histological examinations were made of 928 testes. Results showed that cumulative doses of 100 and 400 r caused virtually the same degree of injury to testes whether given singly or fractionated. The somewhat earlier reduction in testes weight and involvement of the germinal epithelium cells followed by more rapid regeneration with a fractionated dose of 400 r was due to the time factor. At 1,600 r, however, fractionation reduced injury, showing that the effects of fractionation are influenced by cumulative dose size. At a fractionated dose of 400 r, thyroid gland, spleen and leucocytes suffered less injury than with a single dose. There are 6 figures and 2 tables. X

ASSOCIATION: Institut Genetiki AN SSSR (Institute of Genetics AS USSR) and Institut biologicheskoy fiziki AN SSSR, Moscow (Institute of Biological Physics AS USSR, Moscow)

U.S.S.R. 2/2

42690

S/747/62/000/000/011/025
D296/D307

AUTHORS: Luzhdin, M. I., Shapiro, M. I., Petrova, O. N. and Ki-
tyeva, O. N.

TITLE: The influence of x and γ radiation upon the oestrus of mice

SOURCE: Radiatsionnaya genetika; sbornik rabot. Otd. biol. nauk
AN SSSR, Moscow, Izd-vo AN SSSR, 1962, 133-179

NOTE: Histological and cross-breeding methods as well as observation of the oestrus have been extensively used to study the mechanism responsible for radiation-produced sterility. The authors criticize the technical shortcomings of previous studies which led to contradictory results. They studied the effect of ionizing radiation upon the fertility of female mice, by following up the oestrus using unstained vaginal smears, taken daily in the first three months, and also in the sixth month after exposure to total body radiation. The phases of the cycle were established qualitatively and quantitatively on the basis of the relative proportion of the 3 main ele-

Card 1/3

S/747/62/000/000/011/025
D296/D307

The influence of x ...

ments: epithelial cells, keratinized flakes and leucocytes. As the oestrus represents a satisfactory but nevertheless indirect index of fertility, the number of pregnancies and of progeny was also recorded as a direct indication after the irradiated females had been kept with males for 40 days. A single exposure to x rays was found to decrease the number of cycles and their frequency in the group total. Within the cycle the proportion of the pro-oestrus and oestrus stage were diminished and the proportion of the met-oestrus and di-oestrus stage correspondingly increased. The degree of these changes was directly dependent on the dose and on the time since the exposure. Doses under 50 r had no effect upon the oestrus although fertility was impaired even by doses of 15 - 25 r. After exposure to 50 r there is a "latency period" of 6 weeks during which no effect is noticed and which becomes shorter after exposure to higher doses (100 - 400 r). 3 months after the irradiation no cycles could be observed in any of the animals. The disorders were irreversible, at least for the period of observation (6 months). Nulliparous and multiparous mice as well as mice of different strains responded in a similar manner. Chronic exposure to γ rays, even in

Para 2/3

42691
S/747/62/000/000/012/025
D296/D307

2/12/60
AUTHORS: Shapiro, K. I., Huzhdin, M. I. and Kitayeva, O. N.
TITLE: Study of the causes leading to disorders of the oestrus
in mice exposed to total body radiation
SOURCE: Radiatsionnaya genetika; sbornik rabot. Otd. biol. nauk.
AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 180-210

TEXT: In a previous paper (Sb. rabot po radiobiologii, Izd-vo AN SSSR, 1955, 113-149) the authors had shown that the oestral cycle in mice is highly radiosensitive. In the present study the authors tried to establish whether the sterility caused by ionizing radiation is due a) to impairment of production of the gonadotrophic hormone from the pituitary gland, b) interference with the response by the vaginal epithelium to oestrogens, c) destruction of the ovarian follicles, or d) other causes. They also tried to devise an experimental technique for the restoration of the oestrus. Mice were exposed to total body irradiation by means of x rays in a dose of 100 r; homogenates of the pituitary glands were then used to carry

Card 1/3

Study of the causes ...

S/747/62/000/000/012/25
D2 16/0507

out the Zonack gonadotrophin reaction on infantile mice and were found to possess the normal gonadotrophic activity. The vaginal epithelium of the irradiated mice gave a normal response to injections of diethylstilatrophy bestrol, as shown by vaginal smears. To prove their contention that after-exposure to radiation of the ovarian follicles is the main cause of the oestral disorders, the authors transplanted normal ovaries into the irradiated mice, whereupon the normal oestrus cycle was restored. If the transplanted ovaries were surgically removed or underwent resorption the cycle again became disrupted. Histological investigation revealed complete absence of follicles and an almost complete lack of corpora lutea in the ovaries of the irradiated mice. These ovaries mainly consisted of stroma whereas the transplanted ovaries showed a normal structure. To establish whether very high doses of gonadotrophic hormone could still produce a response from any residual ovarian tissue in the irradiated ovaries the mice were given 60 mouse units of gonadotrophic hormone. The ovaries and uterus responded with an increase in weight and size but no restoration of the atrophied follicles could be observed. There are 13 figures and 6 tables.

Page 2/3

Study of the causes ...

S/747/62/000/000/012/025
D296/D307

ASSOCIATION: Institut biologicheskoy fiziki i Institut genetiki
AN SSSR, Moskva (Institute of Biological Physics and
Institute of Genetics, AS USSR, Moscow)

Card 3/3

42692

S/147/62/000/000/013/025
D296/D307

271220

AUTHORS: Shapiro, N. I., Muzhdin, N. I. and Petrova, O. N.

TITLE: The influence of x rays upon the survival rate and fertility of guinea pigs

SOURCE: Radiatsionnaya genetika; sbornik rabot. Otd. biol. nauk AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 211-235

TEXT: As a contribution to the comparative radiobiology of mammals the authors studied the lethal effects of x rays upon guinea pigs of both sexes and the sterility caused by irradiation in female guinea pigs. 250 animals were exposed to total body radiation with x rays in doses ranging from 100 to 2500 r at a rate of 42 - 56 r/min. Males proved to be much more radiosensitive: the minimum lethal dose for males was 500 r compared to 1000 r for females. The respective values for LD_{50/30} were 235 and 365 r. The males perished more rapidly and lost more weight. This marked sexual bimorphism has not been previously described for any other mammalian

Card 1/3

The influence of x rays ...

S/747/62/000/000/013/025
D236/D307

species. To study the sterility caused by total body irradiation the authors investigated the frequency and duration of the oestrus cycle in females using the opening of the vagina at the peak of the oestrus as an indicator: no significant difference could be found by this means between the irradiated and control animals. The direct effect of irradiation upon the ovaries was assessed by quantitative histological investigation and by weighing: serial sections were made through the whole organ and the number of primordial follicles, Graafian follicles and poly-ovular follicles was counted in every tenth section. It appeared that irradiation decreases the number of follicles, particularly of the growing primordial follicle at a rate proportional to the dose and to the time allowed to elapse since the exposure. This fact implies that ionizing radiation exerts its effect upon fertility mainly by impairing the capacity of the germinal epithelium to produce oocytes. In the control animals the weight of the ovaries could be related to the number of follicles counted. This was not the case in the irradiated animals, hence the weight is no reliable index of sterility caused by irradiation. According to their own investigations and

X

Para 2/3

SHAPIRO, N.I.; EL'KINA, O.A.

Production of a preparation of highly purified diphtheria anatoxin and its characteristics. Report No. 3: Immunological activity of highly purified diphtheria anatoxin. Zhur.mikrobiol.epid.i immun. 33 no.5:14-18 My '62. (MIRA 15:8)

1. Iz Leningradskogo instituta vaktsin i syvorotok.
(DIPHTHERIA) (TOXINS AND ANTITOXINS)

ENGEL'GARDT, V.A., akademik, glav. red.; KUZIN, A.M., zam. glav. red.;
NUZHIDIN, N.I., red.; ALIKHANYAN, S.I., doktor biol. nauk, red.;
SHAPIRO, N.I., kand. biol. nauk, red.; KOCHEREZHNIKIN, V.G.,
kand. biol. nauk, red.; ARSEN'YEVA, M.A., red. izd-va;
PRUSAKOVA, T.A., tekhn. red.

[Radiation genetics] Radiatsionnaya genetika; sbornik rabot. Moskva, Izd-vo Akad. nauk SSSR, 1962. 367 p. (MIRA 15:2)

1. Akademiya nauk SSSR. Otdeleniye biologicheskikh nauk. 2. Chlen-korrespondent AN SSSR (for Kuzin, Nuzhdin). 3. Institut biologicheskoy fiziki AN SSSR, Moskva (for Kuzin).

(GENETICS) (RADIATION--PHYSIOLOGICAL EFFECT)

SHAPIRO, N. I.

(d)
The Post-Irradiation Effect in Plant Cells and the Means of Post-Irradiation Protection

N. I. Shapiro and E. M. Bocharova-Protopopova

In the course of a study of nuclear damage in dry barley seed cells, two types of post-irradiation effect have been demonstrated, one dependent on O_2 , the other on temperature. Soaking irradiated seeds in O_2 -saturated water, or heating them in water to 53° , increased the chromosome aberration rate markedly as compared with soaking of seeds under normal conditions. The two after-effects were found to be independent. At the same time it was shown that the O_2 dependent after-effect could be prevented by soaking irradiated seeds in a solution of sodium metabisulphite or alanine. The anti-radiation effect of alanine is not related to previously known modes of action of protective substances.

Chromosome aberration data will be used to discuss the possible nature of the post-irradiation effect, as well as the possible mechanism of action of the protector.

Institute of Biophysics, Academy of Sciences of the USSR, Moscow

96

report presented at the 2nd Intl. Congress of Radiation Research,
Harrogate/Yorkshire, Gt. Brit. 5-11 Aug 1962

PLOTNIKOVA, Ye. D.; STRASHNENKO, S. I.; SHAPIRO, N. I.

Genetic radiosensitivity of guinea pigs. Radiobiologiya 2 no.3:
481-484 '62. (MIRA 15:7)

1. Institut biologicheskoy fiziki AN SSSR i Akademiya meditsinskikh
nauk SSSR, Moskva.

(RADIATION--PHYSIOLOGICAL EFFECT) (GENETICS)

SHAPIRO, N. I.; PROTOPOPOVA(Bocharova), Ye. M.

Studying the radiation aftereffect on plant cells in connection
with radiation protection. Radiobiologiya 2 no.3:485-491 '62.
(MIRA 15:7)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

(RADIATION PROTECTION)

L 11246-62 EWT(1)/EWT(m)/BDS--AFFTC/AMD/ASD--AR/K
ACCESSION NR: AP3001070 S/0205/63/003/003/0431/0439

AUTHOR: Shapiro, N. I.; Tolkacheva, Ye. N.

TITLE: Comparative study of the effect of protective substances in the presence of irradiation of tumid and normal tissues

SOURCE: Radiobiologiya, v. 3, no. 3, 1963, 431-439

TOPIC TAGS: protective substances, tumors, serotonin, mecamine, mercamine, diethylstilbestrol, aminoethylisotiuron

ABSTRACT: Earlier investigations indicated that aminoethylisotiuron, a protective substance, affects irradiated normal and tumid tissues differently. The purpose of this study is to determine whether other protective substances of different chemical structures do likewise. Four highly effective protective substances were selected: serotonin, mecamine, mercamine, and diethylstilbestrol. Mice and rats with transplanted tumors were exposed to single total gamma radiation (Co sup 60 and Cs sup 137) and all protective substances were administered hypodermically in concentrations optimum for protection. Detailed data on the effect of each substance are given in tables 1-3. The experiments indicate that each of the protective substances protects certain types of tumors and not others because each substance

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L 11246-63

ACCESSION NR: AP3001070

5
has its own selective distribution in the tissues of irradiated animals. The problem of whether the mechanism of non-uniform distribution in the protective substance is the only explanation for differential effects remains unanswered. "The authors express their gratitude to N. N. Suvorov for the serotonin and mecamine preparations, V. I. Suslikov for valuable advice on statistical treatment of material, G. Sturua, S. Telepneva, and R. Zakirova for assistance in conducting the experimental part of the study." Orig. art. has: 5 tables, 2 figures, 2 formulas.

ASSOCIATION: Institut biologicheskoy fiziki AN SSSR, Moscow. (Institute of Biological Physics AN SSSR)

SUBMITTED: 06Feb63

DATE ACQD: 01Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 011

OTHER: 010

ch/wm
Card 2/2

SHAPIRO, N.I.; DUDKINA, M.I.; TROFIMOVA, L.V.

Changes in the oxidation-reduction potential in media during submerged culture of paratyphoid bacteria. Zhur. mikrobiol. epid. i immun. 40 no.9:97-101 S'63. (vol. 17:5)

1. Iz Leningradskogo nauchno-issledovatel'skogo instituta vaktsin i syvorotok.

ACCESSION NR: AP4027979

S/0205/64/004/002/0270/0274

AUTHOR: Shapiro, N. I.; Protopopova, Ye. M.

TITLE: Temperature effect on frequency of chromosome mutations in gamma-irradiated seeds

SOURCE: Radiobiologiya, v. 4, no. 2, 1964, 270-274

TOPIC TAGS: temperature effect, gamma-irradiation, gamma-irradiated seeds, preheating (85°C) radioprotective effect, temperature radioprotective action mechanism, beta-alanine, chromosome mutation frequency, oxygen effect, radioprotection coefficient

ABSTRACT: Literature studies have established that heating of barley seeds at 85°C before irradiation reduces the number of chromosome aberrations. The present study investigates the nature of the radioprotective action of heating at 85°C before gamma-irradiation at 10 kr, and the radioprotective effects of beta-alanine and nitrogen during post radiation soaking of heat treated seeds. Two possible explanations for the radioprotective mechanism of heating have been suggested: 1) heating of seeds reduces their oxygen concentration and

Card 1/2

SHAPIRO, N.I.; BORZHINA, I.I.

Comparative studies on preparations of diphtheria toxin and anatoxin.
Vop. med. khim. 10 no.5:479-482 1963 10L.

(MIRA 18:11)

L. Leningradskiy nauchno-issledovatel'skiy institut vaktsin i
sывороток.

L 58315-65 EWT(1)/EWA(j)/EWA(b)-2 JK
ACCESSION NR: AP5013793

UR/0016/65/000/005/0074/0079
576.852.23.097.29

AUTHOR: Shapiro, N. I.

TITLE: Biological heterogenicity of crude diphtheria toxins and toxoids

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 5, 1965, 74-79

TOPIC TAGS: diphtheria toxin, diphtheria toxoid

ABSTRACT: To determine the possible reasons for the discrepancy between the antigenicity of diphtheria toxins and toxoids and their level of biological activity and to determine the exact nature of the relationship between them, it is desirable to evaluate the correlation between these functions in fractions successively isolated from the same original preparation. In this report the author presents data from a study of the relationship between antigenic characteristics (in Lf, limit of flocculation) and toxic or immunogenic activity of crude diphtheria toxins and toxoids and the fractions of varying degrees of purify separated from them. Industrial series of crude or detoxified filtrates of cultures of the PW-8 diphtheria bacillus grown in Marten's broth with glucose and sodium acetate were used in the work. The author

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L 58315-65
ACCESSION NR: AP5013793

found that the biological functions inherent in diphtheria toxin and toxoid (flocculation, toxicity, immunogenicity) are independently distributed between the individual fractions. It is quite possible, therefore, that the determinants of each of the functions are spatially separated and have different structures. Crude diphtheria toxin and toxoid preparations are biologically heterogeneous. They contain two or more specific modifications that differ from each other in physicochemical properties and correlation in the molecules of the determinants which are responsible for flocculation, toxicity, or immunogenicity. Orig. art. has: 1 figure, 3 tables.

ASSOCIATION: Leningradskiy institut vaktsin i syvorotok (Leningrad Institute of Vaccines and Sera)

SUBMITTED: 21Feb64

ENCL: 00

SUB CODE: LS

NO REF SOV: 008

OTHER: 015

Card 2/2

ON PIPO, N.I.; MOSZYCHENNA, I.V.

Infrared spectra and dispersion of optical rotation in preparations
of diphtheria toxins and antitoxins. Voprosy khim. ii no. 5417-21
M-D '65. (MIRA 18:12)

L. Leningradskiy onuchno-issledovatel'skiy institut vaktsin i
serumov. Submitted May 17, 1961.

PIRO, F.B.; SHAPIRO, N.I., prof., red.; ANDREYEV, V.S., red.

[General genetics] Obshchaya genetika. Moskva, Nauka,
1965. 298 p. (MIRA 18:7)

1. Akademiya nauk SSSR. Nauchnyy sovet po problemam molekulyarnoy biologii.

EL'KIN, S.B.; NIKUL'NIKOVA, N.S.; SHAPIRO, N.I.

Immunological characteristics of a polyvalent vaccine from
partially detoxicated antigens and tetanus anatoxin. Zhur.
mikrobiol., epid. i immun. 42 no.10:137-138 0 1965.
(MIRA 18:11)

L. Leningradskiy Institut vaktsin i syverotok. Submitted
August 5, 1963.

ELONIKOVA, Ye.D.; SHAPIRO, N.I.

Radiosensitivity of the nucleolus apparatus of the bone marrow
in various mammalian species as related to their general radio-
sensitivity. Genetika no. 6:67-72 D '65 (MIRA 1961)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

ACC NR: AP7005592

SOURCE CODE: UR/0020/67/172/002/0461/0463

AUTHOR: Antoshechkin, A. G.; Shapiro, N. I.

ORG: Institute of Atomic Energy im. I. V. Kurchatov (Institut atomnoy energii)

TITLE: Comparative mutagenic efficiency of ultraviolet irradiation with different wave lengths

SOURCE: AN SSSR. Doklady, v. 172, no. 2, 1967, 461-463

TOPIC TAGS: UV irradiation, radiation ^{CELLULAR} ~~GENETIC~~ effect, nucleic acid, nucleoprotein, absorption spectrum, *MITOSIS*

ABSTRACT: The general roles of nucleic acid and nucleoprotein injuries in UV irradiation induced chromosome aberrations were investigated in experiments on Chinese hamster fibroblastoid cells. UV wave lengths of 260 and 284 mμ were selected on the basis of literature data indicating that the maximum absorption spectrum of nucleic acids corresponds to 260 mμ and the maximum absorption spectrum of nucleoproteins corresponds to 284 mμ. Before comparing the relative efficiency of the two wave lengths it was established that duration of mitotic phases is the same for both wave lengths at a given dose. In four experimental series using 40, 50, 60 and 70 ergs/mm² doses the cells were irradiated during the highly sensitive S-G₁ phase. Chromosome aberrations were determined in the metaphase and anaphase stages by an

Card 1/2

UDC: 575.246

NIKOLAYEVA, N. V., SHAPIRO, M. S., FRUMKIN, A. M.

Electrolysis

Dependence of the electrolytic reduction of anions on the position of the point of the zero charge of the electrode. Dokl. AN SSSR 86 no. 3, 1952.

Monthly List of Russian Accessions. Library of Congress. December 1952. UNCLASSIFIED.

TELEZHNIKOV, Vasilii Yevgen'yevich; SHAPIRO, N.S., red.; AKATOVA, V.G.,
red. izd-va; VOLKOV, S.V., tekhn. red.

[Construction of small and medium size steam turbine electric
power stations] Stroitel'naya chast' paroturbinnnykh elektrostan-
tsii maloi i srednei moshchnostei. Moskva, Izd-vo M-va kommun.
khoz. RSFSR, 1958. 243 p. (MIRA 11:9)
(Electric power plants)

SHAPIRO, O. I.

Investigation of chlorine derivatives of lignosulfonic acid, A. V. Karatey^v, I. P. Losev, P. S. Konovalenko, O. I. Shapiro and A. M. Gracheva. J. Applied Chem. (U.S.S.R.) 13, 751-61(1940).-The chlorination of lignosulfonic acid (I) and sulfite alk. liquor yielded Cl derivs., which could be divided, after drying, into fractions insol. and sol. in water. The Cl derivs. of I contained more Cl in the sol. than in the insol. portion, whereas with those from sulfite liquor the reverse was true. The Cl derivs. of I contained 10.4-32.2% of Cl, depending on the conditions of chlorination. ~~The insol. Cl;~~ depending on the conditions of chlorination. The insol. Cl derivs. from I contained less, and the sol. more, S than follows from the theoretical calen. The removal of MeO groups occurred in the chlorination and increased with the increase in the Cl reacted, but not equally for the sol. and insol. portions. On an av., 1 MeO was substituted for each 2.6 atoms of Cl in the insol. and 3.8 atoms of Cl in the sol. portion.

A. A. Podgorny

SHAPIRO, G. K.

Mbr., Belorussian Sci. Res. Sanitation Inst., -1946-. Sanitation. Mbr., Minsk Disinfection Sta., -1948-. "Results of Experimental Use of Hexachloroethane in the Extermination of Maggots in Pesspools," Gig. i San., No. 9, 1948.

BRIND, S.A. (Kiyev); GIRENKO, G.S. (Kiyev); SHAPIRO, O.L. (Kiyev)

Is ammonification necessary in the chlorination of artesian
waters? Vod.i san.tekh. no.4:32-33 Ap '60.

(MIRA 13:6)

(Kiev—Water—Chlorination)

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A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE AF AG AH AI AJ AK AL AM AN AO AP AQ AR AS AT AU AV AW AX AY AZ BA BB BC BD BE BF BG BH BI BJ BK BL BM BN BO BP BQ BR BS BT BU BV BW BX BY BZ CA CB CC CD CE CF CG CH CI CJ CK CL CM CN CO CP CQ CR CS CT CU CV CW CX CY CZ DA DB DC DD DE DF DG DH DI DJ DK DL DM DN DO DP DQ DR DS DT DU DV DW DX DY DZ EA EB EC ED EE EF EG EH EI EJ EK EL EM EN EO EP EQ ER ES ET EU EV EW EX EY EZ FA FB FC FD FE FF FG FH FI FJ FK FL FM FN FO FP FQ FR FS FT FU FV FW FX FY FZ GA GB GC GD GE GF GG GH GI GJ GK GL GM GN GO GP GQ GR GS GT GU GV GW GX GY GZ HA HB HC HD HE HF HG HH HI HJ HK HL HM HN HO HP HQ HR HS HT HU HV HW HX HY HZ IA IB IC ID IE IF IG IH II IJ IK IL IM IN IO IP IQ IR IS IT IU IV IW IX IY IZ JA JB JC JD JE JF JG JH JI JJ JK JL JM JN JO JP JQ JR JS JT JU JV JW JX JY JZ KA KB KC KD KE KF KG KH KI KJ KL KM KN KO KP KQ KR KS KT KU KV KW KX KY KZ LA LB LC LD LE LF LG LH LI LJ LK LL LM LN LO LP LQ LR LS LT LU LV LW LX LY LZ MA MB MC MD ME MF MG MH MI MJ MK ML MN MO MP MQ MR MS MT MU MV MW MX MY MZ NA NB NC ND NE NF NG NH NI NJ NK NL NO NP NQ NR NS NT NU NV NW NX NY NZ OA OB OC OD OE OF OG OH OI OJ OK OL OM ON OO OP OQ OR OS OT OU OV OW OX OY OZ PA PB PC PD PE PF PG PH PI PJ PK PL PM PN PO PP PQ PR PS PT PU PV PW PX PY PZ QA QB QC QD QE QF QG QH QI QJ QK QL QM QN QO QQ QR QS QT QU QV QW QX QY QZ RA RB RC RD RE RF RG RH RI RJ RK RL RM RN RO RP RQ RS RT RU RV RW RX RY RZ SA SB SC SD SE SF SG SH SI SJ SK SL SM SN SO SP SQ SR SS ST SU SV SW SX SY SZ TA TB TC TD TE TF TG TH TI TJ TK TL TM TN TO TP TQ TR TS TT TU TV TW TX TY TZ UA UB UC UD UE UF UG UH UI UJ UK UL UM UN UO UP UQ UR US UT UY UZ VA VB VC VD VE VF VG VH VI VJ VK VL VM VN VO VP VQ VR VS VT VY VZ WA WB WC WD WE WF WG WH WI WJ WK WL WM WN WO WP WQ WR WS WT WY WZ XA XB XC XD XE XF XG XH XI XJ XK XL XM XN XO XP XQ XR XS XT XU XV XW XX XY XZ YA YB YC YD YE YF YG YH YI YJ YK YL YM YN YO YP YQ YR YS YT YU YV YW YX YZ ZA ZB ZC ZD ZE ZF ZG ZH ZI ZJ ZK ZL ZM ZN ZO ZP ZQ ZR ZS ZT ZU ZV ZW ZX ZY ZZ																									
SHAPIRO, O. N.																									
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Power transmissions of industrial and mining electric locomotives. SHAPIRO, O. N. <i>Vestn. Elektrom.</i> , 18 (No. 10) 5-12 (1947) in Russian.—A detailed quantitative survey of current methods of transmitting power from the electric motor to the rotating axis of the car-driving wheels, including various types of multiple gear and worm drives. A. L.																									
METALLURGICAL LITERATURE CLASSIFICATION																									

SHAPIRO, O.N.

In the Technical Council of the Ministry of Electrical Industry. Vest.elek-
troprom. 18 no.1-2:24 '47. (MLRA 6:12)

1. Uchenyy sekretar' Tekhnicheskogo soveta Ministerstva elektropromyshlennosti.
(Electric engineering)

SHAPIRO, O.N., inzhener [translator]; SCHAEFELCHLIN, W..[author].

Direct current controllers for ship installations. Vest.elektroprom. 18
no.4:20-24 '47.

(MLBA 6:12)

(Electric controllers)

110-9-18/23

AUTHOR: Shapiro, O.N., Candidate of Technical Sciences.

TITLE: The Influence of Eddy Currents on Transient Processes in Traction Motors. (Vliyaniye vikhrevykh tokov na perekhodnyye protsessy v tyagovykh elektrodvigatelyakh)

PERIODICAL: Vestnik Elektromyshlennosti, 1957, Vol.28, No.9, pp. 70 - 74 (USSR).

ABSTRACT: This article describes an engineering method of calculating electro-magnetic transient processes in d.c. traction motors, with allowance for eddy currents in heavy parts of the machine. A fall in the rate of change of magnetic flux caused by the eddy currents increases the armature circuit currents. This affects the operating conditions of the motor and particularly the commutation. It is, therefore, of practical interest to calculate the curves of change of magnetic flux and current. This question has previously been examined in the literature and the method described gives perfectly satisfactory results without the use of correction curves. The following two cases are characteristic of transient processes in traction motors; sudden switching caused by brief discontinuities between the pantograph and the overhead wire; short circuits that occur when switching the motor from series to parallel connection. Card1/2 Differential equations are written for the transient processes

SHAPIRO, O.N., dots., kand. tekhn. nauk; DIMITRADZE, A.S., doktor
tekhn. nauk, prof., red.

[Electrical engineering; lecture on the section "Three-
phase electrical networks"] Elektrotehnika; leksiia po
razdelu "Elektricheskie tsepi trekhfaznogo toka." Moskva,
Gos.izd-vo "Vysshiaia shkola," 1960. 28 p. (MIRA 17:4)

SHAPIRO, O.N.; SPIVAK, D.I., red.

[New types of multiple-system electric locomotives] Novye tipy mnogosistemnykh elektrovozov. Moskva, TSentr. in-t nauchno-tekhn. informatsii priborostroeniia, elektrotekhn. promyshl. i sredstv avtomatizatsii, 1963. 45 p.

(MIRA 17:5)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po avtomatizatsii i mashinostroyeniyu.

37905

S/193/62/000/004/005/008

A004/A101

AUTHORS: Zorin, D. Ye., Shapiro, O. Ya.

TITLE: АДЛГ —300 (ADLG-300) automatic welder for welding wide strip

PERIODICAL: Byulleten' tekhniko-ekonomicheskoy informatsii, no. 4, 1962, 23-25

TEXT: In 1960 the "Elektrik" Plant designed and manufactured the ADLG-300 automatic welder for butt-welding special grade stainless steel strip 0.5 to 2.5 mm thick and up to 1,520 mm wide. In designing this automatic the welding conditions for stainless steel worked out by the Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo oborudovaniya (All-Union Scientific Research Institute of Electric Welding Equipment) (VNIIESO) were utilized. The ADLG-300 automatic welder consists of a machine with two welding burners, control cabinet and welding converter with two ballast rheostats. Welding is effected with non-consumable tungsten electrodes without welding wire. The high-strength welding seam is produced without reinforcement by flashing-off the edges of the strip being welded. Argon shielding prevents oxidation of the seam. The welding time of a strip 2 mm thick and 1,520 mm wide amounts to 1 minute. The whole butt-jointing and welding process is fully automated. The author presents the

Card 1/2

АДЛГ -300 (ADLG-300) automatic welder ...

S/193/62/000/004/005/008
A004/A101

following technical data: Voltage (at 50 cps) - 380 v; power input - 50 kW; welding current at 25% duty cycle - 300 amp; welding current regulation range - 35 - 300 amp; regulation range of the welding rate of each head - 25 - 60 m/h; air pressure - 4 - 6 kg/cm²; thickness and width of strip being welded - 0.5 - 2.5 and 700 - 1,520 mm; argon consumption - 600 - 1,000 l/h; cooling water consumption - 500 - 600 l/h; table tractive force - 2 tons; strip-end clamping stress - 10 tons; overall dimensions (length x width x height): of automatic welder - 2,600 x 2,800 x 1,700 mm; of control cabinet - 700 x 670 x 1,810 mm; weight: of welder 7,000 kg; of control cabinet - 200 kg. Preliminary calculations have revealed that, with a welding-line capacity of 30,000 tons/year, the new automatic welder will yield savings of more than 50,000 rubles annually. There is 1 figure.

Card 2/2

SHAPIRO, O. E.

Call Nr: TS 236 .S68

AUTHORS: Sokolov, A. N., Lipnitskiy, A. M.

TITLE: Mechanization of Trimming and Cleaning Operations on Castings (Mekhanizatsiya rabot po obrubke i ochistke lit'ya)

PUB. DATA: Mashgiz, Moscow-Leningrad, 1957, 183 pp., 5,000 copies

ORIG. AGENCY: None

EDITOR: Shapiro, O. E., Eng.; Chief Ed. of Leningrad Mashgiz Branch: Bol'shakov, S. A., Eng.; Publ. House Ed.: Borodulina, I. A.; Tech. Ed.: Sokolova, L. V., Reviewer: Sverdlov, V. I., Eng.

PURPOSE: The book is intended for workers in trimming departments and should serve to improve their qualification. It may also be useful to foremen and metallurgists in foundries.

COVERAGE: Mechanized methods of trimming and cleaning castings, as well as the equipment used for these purposes, are discussed. The book presents an outline of the technological processes for various types of casting and also

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Call Nr: TS 236 .S68

Mechanization of Trimming and Cleaning Operations on Castings (Cont.)

the flow of materials in trimming departments. Basic rules of accident prevention are given. In many instances specific examples of trimming tool designs and trimming method as employed in various foundries in the Soviet Union are given. The authors express their gratitude to V. G. Kadnikov, Eng., for assistance in selecting the material for the book. There are 11 USSR references.

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Card 8/8

Dr. L. A. L. "Physical development of newborn infants of Moscow during the
great famine of 1932-1933," *Trudy Vsesoyuznogo nauchnogo tsentra*, Moscow, 1934,
vol. 1, no. 1, p. 1-10. (Leningrad: Gosstatizdat, 1934, p. 1-10.)

CC: L-100, L-101, L-102, (Leningrad: Gosstatizdat, 1934, p. 1-10)

SHAPIRO, J.^{1/2}, and KOGAN, R.B.

"

"Survival Rate of Infants on Discharge from a Maternity Home as an Index of the Quality of Work in the Institution."

[Pediatriya] No. 6, 26,-29, Nov.-Dec., 1949. 1 ref .

The authors studied the survival rate of infants during the first month of life in order to determine how far the quality of work in a maternity home influence the health and resistance of infants; 8,000 infants in four maternity homes in Moscow were followed up during 1945-6. The necessary information was collected from birth and death certificates at the regional health centres.

During 1946 the mortality rate of infants during the first week of life in home No.4 was 3.12% compared with 1.66% in infants from home No.4 was 0.99% and from home No.1, 0.42

All postnatal clinics in the different areas for children discharged from the homes were run on the same lines (a routine which included regular home visits to all infants by the doctors and the nursing staff). One group of 862 infants was born in home No. 1 and lived in the area of home No. 4, the mortality rate up to one month was 0.99% for infants who were born and lived in the area of home No.4. Investigation showed that home conditions of the infants born in different homes did not vary a great deal; 64.5% of the mothers of infants born in home No.4 were working.

The average infant mortality rate in homes NO. 1,2 and 3 was 2.39% and in home No.4, 4.11% (during the first month of life). Most of the children who died after discharge from the maternity home died of pneumonia, which is thought to be one of the manifestations of a toxic-septic condition. The authors maintain that the mortality rate of infants up to one month old is a criterion of the efficiency of a maternity home.

N. Chatelain

Abstracts of World Medicine. Vol. 8. 1950.

SHAPIRO, P.

Mechanizing the work of sack factories and sack repair shops.
Muk.-elev.prom. 20 no.10:31 0 '54. (MLRA 7:12)

1. Kiyevskaya taroremontnaya masterskaya Zagotzerno.
(Bagging)

SHAPIRO, P.I.

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151-153 Ja-F '59. (MIRA 12:4)
(Biology)

DESYATNIKOV, D.T.; CHESNOKOV, N.I.; POPOV, A.A.; NIKOLAYEV, V.D.;
BYKHOVSKIY, A.V.; SHAPIRO, P.I.; SIPYAGINA, Z.A., red. izd-
va; MINSKER, L.I., tekhn. red.

[Lowering the dust content of mine air] Snizhenie zapylen-
nosti rudnichnoi atmosfery. Moskva, Gosgortekhnizdat, 1962.
175 p. (MIRA 15:11)

(Mine dusts)